Decision **PROPOSED DECISION OF ALJ BUSHEY** (Mailed February 16, 2016)

BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

Order Instituting Rulemaking on the Commission's Own Motion to improve distribution level interconnection rules and regulations for certain classes of electric generators and electric storage resources.	Rulemaking 11-09-011 (Filed September 22, 2011)

FINAL DECISION GRANTING JOINT MOTIONS TO APPROVE PROPOSED REVISIONS TO ELECTRIC TARIFF RULE 21 FOR PACIFIC GAS AND ELECTRIC COMPANY, SOUTHERN CALIFORNIA EDISON COMPANY, AND SAN DIEGO GAS & ELECTRIC COMPANY

Table of Contents

Title **Page**

FINAL DECISION GRANTING JOINT MOTIONS TO APPROVE PROPOSED REVISIONS TO ELECTRIC TARIFF RULE 21 FOR PACIFIC GAS AND ELECTRIC COMPANY, SOUTHERN CALIFORNIA EDISON COMPANY, AND SAN DIEGO GAS & ELECTRIC COMPANY 1
Summary 2
1. Background 2
    1.1. Joint Motion on Cost Certainty Issues 6
    1.2. Joint Motion on Behind the Meter Energy Storage 9
    1.3. Fixed Price Option Proposal from Utilities 11
2. Discussion 18
    2.1. Pre-Application Report Enhancements and Unit Cost Guide 20
    2.2. Behind-the-Meter Storage 21
    2.3. Utilities' Fixed Cost Option Proposal 22
3. SMART Inverter Working Group – Continued Collaboration 24
4. Comments on Proposed Decision 25
5. Assignment of Proceeding 25
Findings of Fact 25
Conclusions of Law 27
O R D E R 28

Attachment A - Cost Guide Implementation Principles

Attachment B - Proposed Enhancements to Pre-Application Reports

Attachment C - Clarifications Regarding Treatment of Storage Load in the Rule 21 Tariff

Attachment D – Filing Schedule

FINAL DECISION GRANTING JOINT MOTIONS TO APPROVE PROPOSED REVISIONS TO ELECTRIC TARIFF RULE 21 FOR PACIFIC GAS AND ELECTRIC COMPANY, SOUTHERN CALIFORNIA EDISON COMPANY, AND SAN DIEGO GAS & ELECTRIC COMPANY

Summary

Today's decision grants joint motions improving Electric Tariff Rule 21 to: (1) provide earlier and more reliable interconnection cost information to electric generation developers and (2) set forth the process for analyzing requests for interconnection of electricity storage devices. These motions are the result of an exemplary collaborative process among the parties, all of whom are to be commended for their tireless work. Today's decision also grants, in part, a Fixed Price Option for interconnection cost.

This proceeding is closed.

1. Background

The Commission initiated Rulemaking (R.) 11-09-011 on September 22, 2011 to review and, if necessary, revise the rules and regulations governing interconnecting generation and storage resources to the electric distribution systems of Pacific Gas and Electric Company (PG&E), Southern California Edison Company (SCE) and San Diego Gas & Electric Company (SDG&E). The utilities' rules and regulations pertaining to the interconnection of generation are generally set forth in Electric Tariff Rule 21.

On September 20, 2012, the Commission issued Decision (D.) 12-09-018 which adopted a settlement agreement that included revisions to Electric Tariff Rule 21 and provided a separate Generator Interconnection Agreement for Exporting Generating Facilities and Exporting Generating Facility Interconnection Request. The revisions to Electric Tariff Rule 21 focused on the interconnection study process. The settlement agreement required that each utility revise its Electric Tariff Rule 21 to assign all interconnection requests to either the "Fast Track" - a screen-based, streamlined review process for net energy metering, non-export, and small exporting facilities or the Detailed Study with three study processes for more complicated generating facilities.

On December 18, 2014, the Commission issued D.14-12-035 which granted joint motions proposing revisions to Electric Tariff Rule 21 to require "smart" inverters for PG&E, SCE, and SDG&E. The purpose of inverters is to convert direct current (DC) from the generating resource to the voltage and frequency of the alternating current (AC) distribution system. Wind and photovoltaic resources produce DC, and therefore need inverters, while hydroelectric and biomass generating units, which produce AC, do not. Generally, in California, about 90% of small scale renewable generation is connected to the distribution grid through inverters.

The Commission agreed with the moving parties that bringing the benefits of today's "smart inverters" to California required changes to Electric Tariff Rule 21 and, in D.14-12-035, the Commission adopted the revisions recommended by the Smart Inverter Working Group in their January 2014 "Recommendations for Updating the Technical Requirements for Inverters in Distributed Energy Resources." The Commission granted the parties' request and ordered the utilities to file Tier 1 Advice Letters making the following changes to their respective Electric Tariff Rule 12:

a. Anti-Islanding Protection: Revise Electric Tariff Rule 21, Section H.1.a.(2) to reflect proposed new voltage ride-through settings;

b. Low and High Voltage Ride-Through: Revise Electric Tariff Rule 21, Section H.1.a.(2) and Table H.1 to reflect proposed new default voltage ride-through requirements;

c. Low and High Frequency Ride-Through: Revise Electric Tariff Rule 21, Section H.1.a.(2) and R21 Table H.2 to reflect proposed new frequency ride-through settings;

d. Dynamic Volt-Var Operation: Revise Electric Tariff Rule 21, Sections H.2.a, H.2.b, H.2.i and R21 table H.1 to reflect proposed new dynamic volt/var operations requirements;

e. Ramp Rates: Add new Electric Tariff Rule 21 subsection within Electric Tariff Rule 21, Section H to include proposed new ramp rate requirements;

f. Fixed Power Factor: Revise Electric Tariff Rule 21, Section H.2.i to reflect the proposed new fixed power factor requirements; and

g. Soft Start Reconnection: Revise Electric Tariff Rule 21, Section H.1.a.(2) to reflect proposed new reconnection by soft-start method.

On August 6, 2015, the assigned Commissioner and assigned Administrative Law Judge (ALJ) convened a Status Conference to determine the state of the parties' work on the issues of: (1) behind-the-meter storage interconnection requests, and (2) interconnection cost certainty. The parties appeared and presented the results of their meetings, which have been facilitated by Staff from the California Public Utilities Commission's Energy Division.

On August 19, 2015, the assigned ALJ issued a ruling setting forth the schedule proposed by the parties and approved by the assigned Commissioner and assigned ALJ:

DATE	EVENT
August 6, 2015	Pursuant to Rule 13.14(a), record submitted for decision by the Commission on the issue of the Utilities' fixed cost option proposal versus parties' alternative cost envelope proposal.
August 24, 2015	Clean Coalition distribute to service list Cost Guide Proposal.
August 31, 2015	Solar City and California Solar Energy Industries Association distribute to service list Pre-Application Report Expansion Proposal.
August 31, 2015	Utilities, and other parties should they so desire, distribute to service list written proposal on Storage Load Issues, including any changes to Rule 21 screens.
September 14, 2015	Utilities and Solar City, and other parties should they so desire, distribute to service list Non-Exporting Storage Proposal.
Before September 30, 2015	Utilities conduct informational webinar providing an overview of the process for reviewing storage projects pursuant to Rule 21.
September/October 2015	Energy Division Staff to facilitate workshops on issues, including follow-ups as needed.
November 9, 2015	Joint Motion Requesting Commission action on Cost Certainty Issues filed and served, alternative motions, if any, also filed and served.
November 4, 2015	Joint Motion Requesting Commission action on Storage Interconnection issues filed and served, alternative motions, if any, also filed and served.
As provided in Rule 11 of the Commission's Rules of Practice and Procedure (Rules).	Responses and replies, if authorized, to motions.
With the filing of the last response or reply	Remaining issues in proceeding Submitted for decision

DATE	EVENT
to the motions.	by Commission Pursuant to Rule 13.14(a).

1.1. Joint Motion on Cost Certainty Issues

In compliance with the August 2015 Ruling, Clean Coalition, SolarCity and California Solar Energy Industries Association distributed their proposals as directed and the Energy Division hosted a Workshop on the two cost certainty issues on October 2, 2015. Subsequently, on October 20, 2015, the Energy Division facilitated a second, follow-up workshop on the Cost Certainty Issues.

As a result of the workshops, the parties developed a set of agreed-upon principles to support interconnection efficiency and transparency. On November 9, 2015, SCE, SDG&E, PG&E, California Solar Energy Industries Association, Clean Coalition, CODA Energy and Interstate Renewable Energy Council, Inc., filed and served their joint motion proposing Pre-Application Report Enhancements and the development of a Unit Cost Guide. The moving parties explained that the Unit Cost Guide will give generation developers a readily available price list of typical interconnection facilities and equipment, and that adding specific data, with associated costs and timing, to the Enhanced Pre-Application report will also give generation developers better cost information.

<u>Unit Cost Guide</u>. The purpose of Unit Cost Guide is additional cost transparency in support of generation interconnection. Based upon the numerous discussions and workshops, the moving parties requested that the Commission direct the Utilities to prepare and issue an annual Cost Guide that conforms to a set of agreed-upon principles. The Guide Implementation Principles are set forth in complete detail in Attachment A to today's decision.

The Cost Guide Implementation Principles provide for the Utilities to develop the Guide within 90 Calendar Days of the Commission's decision. Each Utility will publish a Cost Guide for facilities generally required to interconnect generation to their respective Distribution systems, but the Utilities will coordinate to develop a consistent Cost Guide format. The Cost Guide, however, will not be binding for actual facility costs. The Cost Guide will reflect a forecasted annual adjustment for five years to provide estimates for future procurement timing. The Utilities will include illustrative scenarios reflecting stakeholder input to assist in understanding and readability of the guide, and will describe various requirements for interconnection facilities and distribution upgrades; an annual proposed stakeholder review process can act as a forum to discuss the usefulness of such scenarios and provide for updates. The Cost Guide will set forth assumptions used in the calculations in a format similar to that used by the California Independent System Operator, and will provide utility operation and maintenance along with recovery cost calculation method calculations.

The Utilities will update their Cost Guides annually. Prior to posting updates to the Cost Guide, the Utilities will meet and confer with stakeholders to obtain comment on proposed revisions pursuant to a schedule set forth in the Principles. Overall, the Cost Guides developed by the Utilities will not replace any project-specific study costs, but rather, the Cost Guide is intended to be used as a point of reference for projects that are considering the existing study processes.

<u>Enhanced Pre-Application Reports</u>. The moving parties explained that enhancement of the existing Rule 21 Pre-Application Report would address interconnection customer data needs while ensuring overall tariff consistency

and achieving the underlying purpose and intent of the existing Pre-Application Report. The complete set of all requested enhancements to the Rule 21 Pre-Application Report is set forth in Attachment B to today's decision.

The requested enhancements rename the current report "Standard Pre-Application Report" and create a new "Enhanced Pre-Application Report" that permits requests for more detailed data points/packages on a project-specific basis. Overall, the goal is for the Utilities to move towards a single application process for both the Standard and Enhanced Pre-application Reports in order to promote simplicity and streamlined procedures.

Attachment B shows the anticipated method and pricing for the data items available within the Enhanced Pre- Application Report. While the (Standard) Pre-Application Report in its current form and pricing will remain an Available option for interconnection customers, the Enhanced Pre-Application Report data items will be available to an Interconnection Customer based upon specific cost and timing, reflective of the scope of work required for these new enhanced report data items. The Utilities intend to automate as much of the Standard and Enhanced Pre-application request form and related process as is feasible and appropriate.

On November 23, 2015, the Commission's Office of Ratepayer Advocates (ORA) responded in support of the joint motion, and commended the Utilities and other parties for the extensive discussion during the August and September workshops. ORA stated that the Joint Parties had worked hard to reach consensus on the Joint Motion.

ORA also recommended that the Commission direct the Utilities to track the time it takes to prepare the Enhanced Pre- Application Report and the costs associated with its preparation. This information should be used to refine the fee charged to developers in its preparation and avoid undue shifting of these costs to ratepayers such that future updates to the Enhanced Pre-Application Report will reflect the actual price incurred to prepare it.

Solar City also supported the joint motion and noted that there are still outstanding issues that may require additional reforms to Rule 21 and that this or another proceeding should be open to address those issues.

1.2. Joint Motion on Behind the Meter Energy Storage

On November 18, 2015, PG&E, SCE, SDG&E, the Interstate Renewable Energy Council, Inc., the Clean Coalition, Robert Bosch LLC and Stem, Inc. filed and served a joint motion setting forth proposed revisions to Electric Tariff Rule 21 to address interconnection of behind-the-meter, non-exporting energy storage. The joint motion requested Commission authorization for the following revisions to the interconnection process for these storage resources:

- Insert clarifications regarding the treatment of load from energy storage charging to the Rule 21 tariff;
- Allocate costs for upgrades that are attributable to both the load and generation impacts of storage by prioritizing the load impacts before the generation impacts;
- Provide additional detail on energy storage charging load processes through a public Guide; and
- Modify the Interconnection Application and Agreement to capture energy storage load information for the applicable energy storage agreements.

The parties' specific recommendations are set forth in Attachment C to today's decision. The parties also requested that the Commission identify a forum in which additional identified issues related to the interconnection of energy storage will be addressed.

On December 2, 2015, ORA responded in support of the motion to revise Electric Tariff Rule 21 to address interconnection of behind-the-meter, non-exporting energy storage. ORA commended the moving parties for their efforts during the September and October workshops. In addition to the requests set forth in the motion, ORA recommended that the Commission direct the Utilities to record the monetary allowances permitted under Rules 15 and 16 and report back to the Commission the total costs, annually. ORA explained that the allowances of Rules 15 and 16 are allocated to ratepayers and such a report would help determine rate-payer impact in using these rules. Additionally, the report should also include the amount collected via deficiency billing to help to determine the effectiveness of using Rules 15 and 16 allowances for storage interconnection, and to determine if using Rules 15 and 16 is the proper mechanism for cost allocation.

On December 3, 2015, California Solar Energy Industries Association, California Energy Storage Alliance, and SolarCity Corporation each filed responses to the motion. All parties supported the motion. The California Solar Energy Industries Association supported opening a new proceeding for the remaining issues. The California Energy Storage Alliance argued for a "no review necessary" option for energy storage systems under a certain defined energy storage threshold and for energy storage systems operating under standardized operational modes. SolarCity supported the motion but also asked that the interconnection process guide be submitted initially via a Tier 2 advice letter with subsequent modification submitted via a Tier 1 advice letter. Solar City also argues that the operational modes should be expanded to include a "constrained grid charging mode" through which the storage system owner/operator would limit charging to time periods and levels that do not result in system upgrade requirements, leading to more systems qualifying for a cursory review as part of the Rule 21 Fast Track Initial Review Timeline. SolarCity also supported creating an ongoing forum for consideration of a number of outstanding issues related to interconnection.

1.3. Fixed Price Option Proposal from Utilities

On April 1, 2015, SCE, SDG&E, and PG&E (the Utilities) jointly filed a motion with proposed revisions to Electric Tariff Rule 21 to enhance the predictability and reliability of interconnection cost estimates, referred to as "cost certainty," by inserting a Fixed Price Option into Tariff Rule 21.

The Utilities explained that their proposed fixed price option will be available to a significant portion of the Interconnection Requests that pass the Fast Track Interconnection Review Process or qualify for the Independent Study Review Process. Qualifying projects must not only meet the requirements for Fast Track Interconnection Review Process, but must also not require substation upgrades, and require less than $500,000 in upgrades to the electric system. The Utilities stated that projects that do not meet these eligibility requirements are high-impact projects that are likely to require significant distribution upgrades, network upgrades, and/or are dependent upon facilities triggered by earlier queued projects. The Utilities contended that they lacked sufficient data on high-impact projects to extend any fixed price option to such projects.

The fee for the fixed price option is $10,000, which is non-refundable. The Utilities stated that this fee is necessary to pay for the additional resources required to prepare the fixed price estimate.

The Utilities stated that Interconnection Requests that meet the eligibility criteria may opt for the Fixed Price Option whereby the Utility will prepare a Fixed Price Option Estimate which includes an estimate of the costs to interconnect a generating facility with certain specified elements will be offered by the Utility on a fixed price basis. In this way, for all interconnection applicants proceeding under the Fixed Price Option, such specified elements included in the fixed price will be carried through to the Interconnection Agreement and will not be subject to later true-up to actual cost.

Within 20 days following selection of the Fixed Price Option and payment of the Fixed Price Option fee, the interconnection applicant must provide additional technical details, and 60 business days later the Utility will complete the fixed price that will be offered to the interconnection applicant and will include a description of any cost elements not included in the fixed price. Such excluded cost elements are costs of required environmental studies, environmental mitigation, permits, or easements related to the construction and installation of the Utility's facilities, which are excluded due to the unpredictability and potential magnitude of these costs. Accordingly, the interconnection applicant will be responsible for the actual cost of these excluded items.

In the cost certainty motion, the Utilities proposed, "…that any difference, either due to overcollection or undercollection, would be trued up in customer rates through the normal General Rate Case (GRC) capital work order process." No further details on this proposal were included in the motion or the utilities' proposed revisions to Tariff Rule 21.

On April 16, 2015, the assigned ALJ ruled that additional information was needed for the parties and the Commission to evaluate this proposal, and directed that no later than May 1, 2015, the Utilities shall file and serve a supplement to their April 1, 2015, motion setting forth details of this ratemaking proposal. The Utilities were required to describe how differences in project interconnection costs, either over or under-collections, would be treated for purposes of a utility's plant-in-service and regulated rate base. The Utilities were also required to explain their justification for including any such costs in the regulated revenue requirement, and particularly address the incentives created by their ratemaking proposal and customer rates.

On May 8, 2015, the Utilities responded and stated that their Fixed Price Option is designed to minimize any difference between the fixed price given to an interconnection applicant and the actual cost to interconnect the applicant, but that such differences may still occur. Thus, the Utilities stated that they crafted a proposal that ensures their legal right to cost recovery, using a currently established recording methodology, while still improving interconnection cost predictability by offering price certainty to a subset of Rule 21 interconnection applicants. Specifically, the Utilities proposed truing up the difference, either due to overcollection or undercollection, in customer rates through the GRC process by treating the fixed price contracts for the Rule 21 interconnections consistent with existing practices for other applicant-requested distribution construction work. The Utilities explained that an estimate is developed for the work to be performed and payment is made prior to work commencing. After an estimate is provided, if the applicant wishes to proceed, the applicant pays that estimate. The work is then performed. If the estimated costs are equal to the recorded costs, this activity is recorded as net zero plant. For PG&E and SCE, if the estimated costs exceed the recorded costs, the balance is recorded as miscellaneous Other Operating Revenue. If the estimated costs are less than the recorded costs, the excess is net rate base recorded, which is booked to plant-in-service or rate base for recovery through customer rates. For SDG&E, any over-collection or under-collection is recorded to rate base. In short, any cost over or under recovery is allocated to ratepayers.

The Utilities emphasized that their joint price certainty proposal is designed to minimize interconnection cost variances because eligibility for the fixed price option is limited to Interconnection Requests that do not have large impacts to the distribution system. Although the Utilities foresee that many Interconnection Requests will be eligible for the fixed price option, the eligible projects will be projects that do not require significant distribution upgrades and/or are not dependent upon facilities triggered by earlier-queued projects, which is designed to ensure a high level of confidence in the fixed price estimate, and thus minimize cost variances. The Utilities also point out that other proposed restrictions reduce the risk of cost variances such as: (1) the exclusion of certain cost elements, such as costs of required environmental studies, environmental mitigation, etc., due to the unpredictability and potential magnitude of these costs, and (2) a firm deadline for fixed cost estimate payment to ensure cost estimates do not become stale. In summary, the Utilities argued that impacts to customer rates, if any, would be minimal from the fixed cost option.

On May 22, 2015, the following parties filed comments to the Utilities' Joint Cost Certainty proposal and Supplement: BioEnergy Association of California/Placer County Air Pollution Control District, SolarCity, California Solar Energy Industries Association, NRG Energy, Inc., California Energy Storage Alliance, Clean Coalition, and the Interstate Renewable Energy Council. Generally, the commenting parties supported the concept of cost certainty reflected in the Utilities' proposal, but a number of parties also provided critiques regarding specific aspects of the Utilities' Fixed Price Option proposal:

- **Eligibility requirements**: Some parties argued that the eligibility requirements for the Fixed Price Option are overly constrained and apply to a limited scope of the simplest projects. In order to open the Fixed Price Option up to a greater number of projects, Clean Coalition and Interstate Renewable Energy Council call for the $500,000 upper limit on system upgrades to be dropped. One party also proposed dropping the No Substation Upgrades requirement for Fixed Price Option eligibility, as well as the 5 MW eligibility limit for Independent Study Review projects.

- **$10,000 fee**: Some developers opposed the $10,000 fee to elect the Fixed Price Option as excessive and lacking justification.

- **60 Business Day study period**: SolarCity contended that the 60 Business Day timeline for developing a fixed price estimate should be reduced to 20 Business Days, as this would be consistent with timelines to complete a Supplemental Review. Clean Coalition stated that the proposed 60 Business Day timeline for developing a fixed price estimate would significantly lengthen the Fast Track process and has not been properly justified by the Utilities, and instead suggested a 30 Business Day timeline.

- **Fixed Price Estimate Granularity and Review**: Interstate Renewable Energy Council proposed that the Fixed Price Option estimate includes a detailed breakdown of equipment costs, labor hours and rates, and all other components of the estimate, and also believes that the Fixed Price Option process should include the ability for the applicant to discuss the fixed price estimate with the Utility.

Some parties' comments included alternative proposals to increase cost certainty and predictability within the interconnection process, either alongside or in lieu of the Utilities' Fixed Price Option proposal. For instance, a number of parties expressed support for more up-front data on system upgrade component costs

and local system configurations at a customer's site, which led to the Unit Cost Guide and Enhanced Pre-Application Report proposals put forth in the November 9, 2015 Joint Motion on Cost Certainty. However, some parties sought a more expansive cost certainty model than the Utilities' Fixed Price Option proposal, referred to as a Cost Envelope, which they propose be available to more projects and have a wider band of applicant responsibility for variations between estimated and actual costs than the Fixed Price Option.
BioEnergy Association of California/Placer County Air Pollution Control District suggested a hybrid cost certainty framework in which the Utilities' Fixed Price Option can exist alongside a Cost Envelope option that covers all other projects that are ineligible for the Fixed Price Option. BioEnergy Association of California/Placer County Air Pollution Control District proposed a cost envelope with a declining envelope range that narrows as a project progresses through the application stages: a 25% envelope after System Impact Study, or a 15% envelope after Facilities Study. Overestimations beyond the lower limit would be refunded to the applicant, whereas underestimations over the upper limit would be picked up by Utility shareholders. This would hold Utilities accountable for making accurate estimations and would encourage greater accuracy and predictability of interconnection costs.

Clean Coalition, on the other hand, proposed a 10 – 25% envelope for all projects that pass Fast Track or Independent Study Review — i.e., in lieu of the Utilities' Fixed Price Option — to be elected by applicant any time before entering into an Interconnection Agreement. Clean Coalition's proposal would maintain the No Substation Upgrade requirement as in the Fixed Price Option proposal, would allow 30 days for preparation of the estimate, and would allocate actual costs beyond the cost envelope limit to the Utilities' proposed

GRC true-up mechanism. Clean Coalition suggests that an Independent Evaluator review balancing account entries to ensure cost estimates are accurate and consistent.

ORA, however, supported an alternative approach – "the Massachusetts model." As explained by ORA, under the Massachusetts cost envelope model, interconnection applicants pay cost overruns of up to ten percent over the estimated cost and utility shareholders absorb any overruns that exceed the ten percent Ratepayers do not assume any risk for cost overruns.[1]

ORA reasoned that the Massachusetts cost envelope model serves to better protect ratepayers by keeping any interconnection cost overruns shared between the applicant (the entity creating the cost) and the Utility (the entity responsible for the cost estimate.) ORA contended that the Massachusetts cost envelope model also protects applicants from excessive increases in costs charged by the Utilities, while also providing an incentive for the Utilities to provide accurate cost estimates since the shareholders are responsible for any costs incurred above the 10% cap.

ORA argued that the Utilities improperly implied in their Supplement to the Joint Utilities' Cost Certainty Proposal that utilities are always guaranteed a rate of return on their investments. ORA contended that the Commission may authorize cost recovery for utilities if they show that the costs incurred are justified, and the Utilities' Cost Certainty Proposal with a "true-up" for the difference between actual and recovered costs in future GRCs is fundamentally flawed and presumptuous because it does not provide for Commission review.

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[1] ORA also opposed the Clean Coalition's proposal for a modified Massachusetts Model which would similarly allocate cost overruns to ratepayers.

ORA concluded that the Utilities' Cost Certainty Proposal improperly shifts a utility's revenue shortfall resulting from their inaccurate cost estimates to ratepayers, which, under the current ratemaking principles, is the responsibility of the generators, and the Utilities have provided no rationale to support the reasonableness of this proposed cost shift. ORA stated that the Commission's longstanding ratemaking principles include avoiding cross-subsidies between customer classes by ensuring that the entity that creates costs pay those costs. ORA recommended adopting the Massachusetts model for Cost Certainty of Interconnection and rejecting the Joint Utilities' Cost Certainty Proposal.

2. Discussion

Pursuant to Public Utilities Code Section 451 each public utility in California must:

> Furnish and maintain such adequate, efficient, just and reasonable service, instrumentalities, equipment and facilities, …as are necessary to promote the safety, health, comfort, and convenience of its patrons, employees, and the public.

The duty to furnish and maintain safe equipment and facilities falls squarely on California public utilities, including electric utilities.

The burden of proving that particular facilities are safe also rests with the utility. The purpose of Electric Tariff Rule 21 is to ensure that generating facilities interconnect with California electric distribution or transmission systems subject to requirements that they maintain safe operating conditions for utility customers, personnel, and the general public, as well as to retain electric system integrity.

In today's decision, we adopt two important revisions to Electric Tariff Rule 21, developed largely through consensus, that improve the interconnection application process by making interconnection cost estimates available earlier to prospective applicants. First, each utility will create and post on its web site a new Unit Cost Guide so that prospective interconnection applicants are able to immediately obtain typical cost data. This readily available information should assist developers in the early evaluation of potential sites.

Second, each Utility will make available an Enhanced Early Application Report in addition to its existing Standard Application Report. The Enhanced option will allow developers to request and obtain specific interconnection cost data more quickly and to tailor the data selected to the specific proposed project.

As set forth below, we grant the joint requests to make interconnection cost data available earlier the process and we commend the parties for their efforts to develop these consensus requests.

We similarly grant the joint request for improvements to the treatment of behind the meter storage pursuant to Rule 21. Those improvements include clarifications of the manner in which storage charging load will be addressed in evaluating requests to interconnect energy storage devices, with load aspects being dealt with pursuant to Electric Rules 2, 3, 15 and 16 just like other load. Cost allocation will also use the new load impacts as the determining factor, and a new Interconnection Process Guide detailing the processes by which the load aspects of energy storage are reviewed, including specific size thresholds and cost responsibility of load-related upgrades not already included in Rule 21 or Rules 2, 3, 15 and 16, will also improve the process for interconnection of behind the meter storage.

Finally, we approve, in part, the Utilities Fixed Price Option proposal. While we understand and support the objective to provide interconnection applicants with reliable cost estimates as early as possible, for the reasons stated by ORA, we are disinclined to allocate cost overruns to ratepayers. We authorize the Utilities to file a Tier 2 Advice Letter including the Fixed Price Option but not allocating cost overruns to ratepayers.

2.1. Pre-Application Report Enhancements and Unit Cost Guide

As set forth above, the moving parties explained that Electric Tariff Rule 21 would be improved with the development of: (1) a Unit Cost Guide to give generation developers a readily available price list of typical interconnection facilities and equipment, and (2) adding specific data, with associated costs and timing, to be included in the Enhanced Pre-Application report.

The goal of the Pre-Application Report and Unit Cost Guide is to make cost data available earlier to prospective interconnection applicants. The moving parties' proposal is captured in the Cost Guide Implementation Principles, reproduced in Attachment A, which provide for the Utilities to develop the Guide within 90 Calendar Days of the Commission's decision. Using a consistent format, each Utility will publish a Cost Guide for facilities generally required to interconnect generation to their respective Distribution systems. While not be binding for actual facility costs, the Cost Guide will provide the anticipated cost of procuring and installing delineated facilities during the current year, acknowledging that costs may vary among the Utilities and within an individual Utility's service territory. The Cost Guide will include forecast costs for five years to allow project planning.

The specific proposals for Enhancements to the Pre-Application Report are set forth in Attachment B. These enhanced and optional aspects will allow interconnection applicants to obtain a Report tailored to the specific needs of the project and the applicant.

We find that providing prospective interconnection applicants cost estimates at an earlier stage and in a readily available format will improve the operation of Electric Tariff Rule 21. We, therefore, conclude that the jointly requested and unopposed proposed revisions to Tariff Rule 21 as set out in Attachments A and B should be approved. The Utilities should comply with the filing schedules as agreed-to in Attachments A and B.

2.2. Behind-the-Meter Storage

We similarly grant the joint request for improvements to the treatment of behind the meter storage pursuant to Rule 21. Those improvements include clarifications of the manner in which storage charging load will be addressed in evaluating requests to interconnect energy storage devices, with load aspects being dealt with pursuant to Electric Rules 2, 3, 15 and 16 just like other load. Cost allocation will also use the new load impacts as the determining factor, and a new Interconnection Process Guide detailing the processes by which the load aspects of energy storage are reviewed, including specific size thresholds and cost responsibility of load-related upgrades not already included in Rule 21 or Rules 2, 3, 15 and 16, will also improve the process for interconnection of behind the meter storage.

We also approve and endorse the proposed process for continuing the collaborative efforts that have to date been so fruitful. The moving parties seek to continue discussions initiated during the workshops to consider additional potential changes to Rule 21. Specifically, the parties intend to work on defining criteria for an expedited interconnection process for non-exporting energy storage, for a particular AC/DC converter to immediately pass Rule 21 Fast Track Initial Review after successful compliance testing, and a filing date for a status report on developing consensus-based requirements to address the inadvertent export issue.

We, therefore, conclude that the jointly requested and unopposed proposed revisions to Tariff Rule 21 as set out in Attachment C should be approved, and the on-going process proposed in Attachment C adopted as well. The Utilities should comply with the filing schedules as agreed to in Attachment C, and summarized in the Master Filing Schedule shown in Attachment D to today's decision.

2.3. Utilities' Fixed Price Option Proposal

We approve, in part, the Utilities Fixed Price Option proposal. While we understand and support the objective to provide interconnection applicants with reliable cost estimates as early as possible, for the reasons stated by ORA, we are disinclined to allocate cost overruns to ratepayers. We authorize the Utilities to file a Tier 2 Advice Letter including the Fixed Price Option but not allocating cost overruns to ratepayers.

The Utilities' proposed fixed price option would provide eligible interconnection applicants with a fixed interconnection cost for an application fee of $10,000 and within 60 days of providing the application materials. The Utilities argue that their proposal will bring interconnection cost certainty to a significant portion of interconnection applicants. The specific changes to Rule 21 to implement this option are set forth in a revised section 7 for Rule 21 attached to the motion.

Tariff Rule 21, however, reflects only a portion of the entire proposal. In addition to the Tariff Rule 21 changes applicable to interconnection applicants, the Utilities' cost certainty proposal includes ratemaking proposals for cost overruns not recovered from the interconnection applicant where the actual costs are in excess of the fixed cost amount collected from the applicant via the fixed cost program.

The details of the ratemaking consequences of interconnection cost overruns differs among the Utilities, but the end result is the same: ratepayers, not interconnection applicants, pay the cost overruns. For PG&E and SCE, if the estimated costs exceed the recorded costs, the balance is recorded as miscellaneous other operating revenue. That is, an offset to current operating expenses. If the estimated costs are less than the recorded costs, the excess is net rate base recorded, which is booked to plant-in-service or rate base for recovery through customer rates. That is, cost overruns are added to rate base, for recovery from ratepayers plus earning a rate of return. For SDG&E, any overcollection or undercollection is recorded to rate base.

On July 8, 2015, in reply comments ORA opposed the Utilities' ratemaking proposal because the proposal improperly shifts a utility's revenue shortfall resulting from the utility's inaccurate cost estimates to ratepayers, rather than assessing the cost to the interconnection applicant, which caused the cost to be incurred. ORA argued that the Commission's ratemaking principles assign cost recovery to the responsible party, here, the interconnection customer, and that the Utilities have provided no rationale to support the reasonableness of their proposed deviation from the long-standing cost allocation principle. ORA recommended adopting the Massachusetts model, which allocates cost overruns to shareholders.

As explained by ORA, the Utilities' proposal to allocate cost overruns to ratepayers is at odds with the Commission's ratemaking principles. Not only would interconnection customers receive services at less than the cost of service, but the utility would have no incentive to improve its estimating process if the utility were shielded from the consequences for poor estimates.

ORA has correctly and persuasively stated this Commission's ratemaking principles – cost recovery follows cost causation. Here, interconnection costs are being caused by an interconnection customer and through the Fixed Price Option some costs may be recovered from ratepayers. Accordingly, we are not able to approve the portion of the Utilities' cost certainty proposal that allocates cost overruns to ratepayers.

We find the scope of applicability and specifications of technical information required are reasonable, as is the $10,000 application fee, and this process will provide at least some interconnection applicants with a fixed interconnection price option. We accept the utilities' offer to review and revise the application fee after one year of operation. We find that the proposed revisions to Electric Tariff Rule 21 for a Fixed Price Option as set forth in the attachment to April 1, 2015, motion are reasonable and should be approved.

We, therefore, authorize the Utilities to file a Tier 2 Advice Letter revising Electric Tariff Rule 21 to include a new section F.7. Fixed Price Option as shown in their April 1, 2015, motion. Any such Advice Letter filing must include a showing that ratepayers are not allocated cost over runs.

3. SMART Inverter Working Group – Continued Collaboration

Early in the nearly five-year time this proceeding has been open, the parties created the Smart Inverter Working Group as a forum for collaboratively developing advanced inverter functionality for inclusion in Rule 21. We encourage the parties and other interested stakeholders to continue to participate in the Working Group. Our Staff in the Energy Division will also continue to monitor emerging issues as improved inverters are deployed and communication protocols developed.

Consensus proposals pertaining to Smart Inverter Working Group recommendations or Rule 21 interconnection more broadly may be brought forward for Commission consideration by the Utilities in the form of Advice Letters or Applications as appropriate. Other parties may file Petitions for Rulemaking pursuant to Rule 6.3 of the Commission's Rules of Practice and Procedure or Complaints as set forth in Rule 4. The Commission has opened two proceedings related to distributed resources where interconnection issues may also be addressed: Rulemakings 14-08-013 and 14-10-003.

4. Comments on Proposed Decision

The proposed decision in this matter was mailed to the parties in accordance with Section 311 of the Public Utilities Code and comments were allowed under Rule 14.3 of the Commission's Rules. Comments were filed on _____________ and Reply Comments were filed on ____________________.

5. Assignment of Proceeding

Michael Picker is the assigned Commissioner and Maribeth A. Bushey is the assigned ALJ in this proceeding.

Findings of Fact

1. On November 9, 2015, SCE, SDG&E, PG&E, California Solar Energy Industries Association, Clean Coalition, CODA Energy and Interstate Renewable Energy Council, Inc., filed and served their joint motion proposing Pre-Application Report Enhancements and the development of a Unit Cost Guide.

2. The specific elements of the Unit Cost Guide are set forth in Attachment A to today's decision.

3. The specific elements of the Pre-Application Report Enhancements are set forth in Attachment B to today's decision.

4. No party opposed the proposed Pre-Application Report Enhancements and development of a Unit Cost Guide.

5. The proposed Pre-Application Report Enhancements and development of a Unit Cost Guide are reasonable.

6. On November 18, 2015, PG&E, SCE, SDG&E, the Interstate Renewable Energy Council, Inc., the Clean Coalition, Robert Bosch LLC and Stem, Inc. filed and served a joint motion setting forth proposed revisions to Electric Tariff Rule 21 to address interconnection of behind-the-meter, non-exporting energy storage. The specific actions to be taken and the applicable timetable for behind-the-meter, non-exporting energy storage are set forth Attachment C to today's decision.

7. No party opposed the proposed revisions to Electric Tariff Rule 21 to address interconnection of behind-the-meter, non-exporting energy storage.

8. The proposed revisions to Electric Tariff Rule 21 to address interconnection of behind-the-meter, non-exporting energy storage are reasonable.

9. On April 1, 2015, Southern California Edison Company, San Diego Gas & Electric Company, and Pacific Gas and Electric Company (the Utilities) jointly filed their motion with proposed revisions to Electric Tariff Rule 21 to provide a Fixed Price Option for interconnection costs.

10. On May 8, 2015, the Utilities explained their ratemaking proposal for interconnection cost overruns of projects subject to the Fixed Price Option.

11. No party opposed the Fixed Price Option as set forth in the April 1, 2015, motion, but several parties requested modifications.

12. ORA opposed the proposed ratemaking for cost overruns on projects subject to the Fixed Cost Option.

13. The Commission's ratemaking principles direct that costs are allocated to the party causing the cost to be incurred.

14. The Utilities' ratemaking proposal for cost overruns of projects subject to the Fixed Price Option allocates such costs to ratepayers, not the interconnection customer.

15. The Utilities' ratemaking proposal for cost overruns of projects subject to the Fixed Price Option allocates such costs to ratepayers, not the interconnection customer, and therefore is not consistent with our ratemaking principles and is not reasonable.

16. The Fixed Price Option is reasonable as reflected in the April 1, 2015 motion, other than as regards ratemaking treatment for cost over runs.

Conclusions of Law

1. The November 9, 2015, Joint Motion of SCE, SDG&E, PG&E, California Solar Energy Industries Association, Clean Coalition, CODA Energy and Interstate Renewable Energy Council, Inc., should be granted consistent with today's decision.

2. The November 18, 2015, joint motion of PG&E, SCE, SDG&E, the Interstate Renewable Energy Council, Inc., the Clean Coalition, Robert Bosch LLC and Stem, Inc. setting forth proposed revisions to Electric Tariff Rule 21 to address interconnection of behind-the-meter, non-exporting energy storage, with specific actions and applicable timetable for behind-the-meter, non-exporting energy storage are set forth Attachment C to today's decision, should be granted.

3. The Utilities' ratemaking proposal for cost overruns of projects subject to the Fixed Price Option allocates such costs to ratepayers, not the interconnection customer, and therefore is not consistent with our ratemaking principles, is not reasonable and should not be approved.

4. The Fixed Price Option is reasonable as reflected in the April 1, 2015 motion and should be approved.

5. The parties should be encouraged to continue their now well-established collaborative process to raise and resolve interconnection issues.

6. This proceeding should be closed.

7. This decision should be effective immediately.

O R D E R

Therefore, **IT IS ORDERED THAT**:

1. The November 9, 2015, Joint Motion of Southern California Edison Company, San Diego Gas and Electric, Pacific Gas and Electric Company, California Solar Energy Industries Association, Clean Coalition, CODA Energy and Interstate Renewable Energy Council, Inc. setting forth proposals for the development of a Unit Cost Guide, as further specified in Attachment A, and Pre-Application Report Enhancements, as shown in Attachment B, is granted consistent with today's decision.

2. No later than 15 calendar days after the effective date of today's decision, Southern California Edison Company, San Diego Gas and Electric Company, Pacific Gas and Electric Company must file and serve Tier 1 Advice Letters revising Rule 21 to provide for Unit Cost Guide and Annual Review Process; further, no later than 90 calendar days after the effective date of today's decision, Southern California Edison Company, San Diego Gas and Electric Company, Pacific Gas and Electric Company must file and serve Tier 1 Advice Letters publishing their respective first Unit Cost Guide. Subsequent versions of the Unit Cost Guide are not to be filed with the Commission.

3. The November 18, 2015 joint motion of Southern California Edison Company, San Diego Gas and Electric Company, Pacific Gas and Electric Company, the Interstate Renewable Energy Council, Inc., the Clean Coalition, Robert Bosch LLC and Stem, Inc. setting forth proposed revisions to Electric Tariff Rule 21 to address interconnection of behind-the-meter, non-exporting energy storage as described in Attachment C, is granted as set forth in today's Decision.

4. The April 1, 2015, joint motion of Southern California Edison Company, San Diego Gas and Electric Company, Pacific Gas and Electric Company, regarding adding a Fixed Price Option to Electric Tariff Rule 21 is granted insofar as the proposed revisions to Tariff Rule 21 are concerned; the proposed ratemaking for cost overruns contemplated by the motion is denied. Southern California Edison Company, San Diego Gas & Electric Company and Pacific Gas and Electric Company are authorized to file Tier 2 Advice Letters adding the Fixed Price Option to Tariff Rule 21. Any such Advice Letter must affirmatively demonstrate that ratepayers are not allocated interconnection cost over runs.

5. The parties must comply with the filing and event schedule set out in Attachment D.

6. Rulemaking 11-09-011 is closed.

This order is effective today.

Dated ___________________, 2016, at San Francisco, California.

ATTACHMENT A

COST GUIDE IMPLEMENTATION PRINCIPLES

1. **Initial Development Timing** – The Cost Guide will be developed within 90 Calendar Days of the issuance date of the Commission's decision approving the request. The initial review of the Cost Guide will incorporate steps as described within the Annual Stakeholder process as described in Section 2(h) below.[2]
2. **Cost Guide Scoping Principles** – The following principles stated below will be incorporated within the Cost Guide development process and supporting tariff requirements (as necessary):
   a. Each Utility shall publish a Cost Guide for facilities generally required to interconnect generation to their respective Distribution systems.[3] The Utilities will coordinate to develop a consistent Cost Guide format;
   b. The Cost Guide is not binding for actual facility costs and is provided only for additional cost transparency and developer reference availability;
   c. The Cost Guide will include the anticipated cost of procuring and installing such facilities during the current year and may vary among the Utilities and within an individual Utility's service territory[4];
   d. An annual adjustment will be performed within the Cost Guide for five years to account for the anticipated timing of procurement to accommodate a potential range of commercial operation dates;
   e. The Cost Guide will be consulted as part of the Utilities' study estimate;
   f. The Utilities will work with stakeholders after issuance of the initial Cost Guide and review whether a proposed narrative explanation regarding cost deviation between the Cost Guide estimate and system study facility proposed estimate should be prepared and under what threshold conditions the narrative explanation would apply;
   g. The Cost Guide will include illustrative scenarios reflecting stakeholder input to assist in understanding and readability of the guide, and will describe various

[2] For the initial cost guide development, the Utilities anticipate an approximate 30-45 calendar day stakeholder process utilizing the review guidelines as outlined within Section 5(h) below. Upon conclusion of the stakeholder process, an Advice Letter will be filed as discussed within Section 2(h)(vi).

[3] Distribution voltages are defined under Rule 2, Section B.

[4] The Cost Guide will also include an "assumptions" sheet/tab akin in detail to what is currently provided within the CAISO Cost Guide. In particular, the assumptions tab would provide utility operation and maintenance along with recovery cost calculation method calculations as currently approved by each Utility along with other relevant information to support the cost estimates provided (ex: commentary regarding the unit cost guide elements based on utility reviews). The cost additions as described above would be incorporated into proposed project examples as described in Section 2(g) consistent with a total project cost amount as calculated within a Generator Interconnection Agreement. Please note that as consistent with the current CAISO guide, confidential proprietary vendor information will not be disclosed within the Cost Guide.

requirements for interconnection facilities and distribution upgrades[5]; the annual proposed stakeholder review process can act as a forum to discuss the usefulness of such scenarios; and

h. A proposed annual update of the Cost Guide would be performed in accordance with the following process[6]:

   i. During the first quarter (January to March) of the year each Utility will post to their Open Access public web page the proposed Cost Guide; the posting would be made no later than March 31 of each year[7]

   ii. At least 15 business days prior to posting, the Utilities will facilitate a Pre-Posting workshop (via phone or in person) with stakeholders to gather comments on a previously posted Cost Guide or to discuss the initial proposed Cost Guide;

   iii. No less than 10 Business Days prior to the Pre-Posting workshop, the Utilities will notify interested parties;[8] and

   iv. Within 10 Business Days of posting the Cost Guide, the Utilities will host a post-posting workshop (via phone or in person) to review with stakeholders any changes made to the previous year's posted Cost Guide data (if any) and to address any outstanding matters raised at the initial Pre-Posting workshop.

   v. Once established, the Utilities will also post dates for Pre-Posting Workshop, Cost Guide posting date and any Post workshop dates on their respective Open Access public site.

   vi. Upon the conclusion of the annual process described above, each Utility will each file a Tier 1 advice letter with the California Public Utilities Commission to formally establish and subsequently update the Cost Guide.

(END OF ATTACHMENT A)

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[5] Scenario description will also provide editorial notes regarding potential items that would cause variability from a Cost Guide derived estimate (for example, construction timelines that would be impacted by traffic control limitations).

[6] Please see footnote 5 for discussion of initial Cost Guide review timeline. The initial review stakeholder outreach will be governed in accordance with the principals highlighted within 5(ii)-5(vi).

[7] For the case of the initial Cost Guide, the Utilities propose to issue the Cost Guide within 90 calendar days of the issuance date of the Commission's decision on this Motion. As discussed during the Commission sponsored workshops, the Unit Cost Guide would be required to be updated on an annual basis in accordance with tariff requirements, but the Utility may provide interim Cost Guide updates if market conditions warrant such revision.

[8] Interested parties will include, at a minimum, the Service list of R.11-09-011 or a successor proceeding that includes Rule 21 within its scope.

ATTACHMENT B

PROPOSED ENHANCEMENTS TO PRE-APPLICATION REPORTS

1. **Initial Development Timing –** The Joint Parties request that the Utilities be directed to file tariff revisions to implement the described enhancements to the Pre-Application Report below via an Advice Letter within 15 Calendar Days of the issuance date of the Commission's decision on this Motion.
2. **Item Request Protocol –** The table below summarizes the anticipated method and pricing for the agreed upon enhanced report data items available within the Enhanced Pre-Application Report. In particular, the Joint Parties believe that the availability of the existing (Standard) Pre-Application Report in its current form and pricing should remain an available option for Interconnection Customers, and that Enhanced Pre-Application Report data items will be available to an Interconnection Customer based upon specific cost and timing, reflective of the scope of work required for these new enhanced report data items.[9] Requests that exclude the Standard Pre-Application Report and select only Enhanced Pre-Application Report items will be assessed an additional administrative fee of one hundred dollars to account for the processing, review, and management of the Enhanced Pre-Application Report items. If an Interconnection Customer requests a combination of reports with varying timeframes for completion (e.g. Standard Pre-Application Report and an Enhanced Pre-Application Report that require 10 Business Day and 30 Business Day respective timeframes for completion), the longer timeframe will be applied to all aspects of the request.
3. **Automation –** The Utilities will automate as much of the Standard and Enhanced Pre-Application Report request form and related process as is feasible and appropriate.

The table below summarizes the data included in the Enhanced Pre-Application report, the associated costs, and timing involved.

Data Package	Cost	Time	Proposed Report
Primary Service Package: Nominal Distribution circuit voltage and wiring configuration i) Relevant line section(s) absolute minimum load, and minimum load during the 10 AM – 4 PM period (provided when SCADA data is	$225	10 Business Days (timeline is 30 Business Days if requested with Behind-the-Meter	Enhanced Pre-Application Report

[9] The proposed data item of Nominal Distribution Circuit Voltage and Wiring Configuration will be incorporated within the Standard Pre-Application Report at no additional cost in recognition of streamlining efforts proposed for the processing of the data packages.

available). ii) Existing upstream protection including: (a) Device type (Fuse Breaker, Recloser) (b) Device controller (device make/model ex: 50E/50T) (c) Phase settings [IEEE Curve, Lever, Min Trip (A), Inst Trip(A)] (d) Ground settings [IEEE Curve, Lever, Min Trip (A), Inst Trip(A)] (e) Rated continuous current (f) Short Circuit interrupting capability (g) Confirm if the device is capable of bi-directional operation iii) Provide the Available Fault Current at the proposed point of interconnection including any existing distributed generation fault contribution.		Interconnection Package)	
Behind The Meter Interconnection Package (Package does assume a physical verification based on field confirmation): i) Relevant line section(s) absolute minimum load, and minimum load during the 10 AM – 4 PM period (provided when SCADA data is available) ii) Transformer data (a) Existing service transformer kVA rating (b) Primary Voltage and Secondary Voltage rating (c) Configuration on both Primary and Secondary Side (*i.e.,* Delta, Wye, Grounded Wye, etc.) (d) Characteristic impedance (%Z) (e) Confirm if the transformer is serving only one customer or multiple	$800	30 Business Days	Enhanced Pre-Application Report

customers[10] (f) Provide the Available Fault Current on both the Primary and Secondary Side iii) Secondary Service Characteristics (a) Conductor type (AL or CU) and size (AWG) (b) Conductor insulation type (c) Number of parallel runs (d) Confirm if the existing secondary service is 3 wire or four wire. iv) Primary Service Characteristics (a) Conductor type (AL or CU) and size (AWG) (b) Conductor insulation type (c) Number of parallel runs (d) Confirm if the existing primary service is three wire or four wire.			

(END OF ATTACHMENT B)

[10] As discussed during the workshops, it is expected that customer authorization will be required for release of customer specific information. If customer authorization is required, the Utilities will notify the applicant if additional processing time will be required.

ATTACHMENT C

RECOMMENDATIONS FOR STREAMLINING AND STANDARDIZING THE INTERCONNECTION PROCESS FOR BEHIND-THE-METER, NON-EXPORTING ENERGY STORAGE

I. PROPOSALS FOR COMMISSION APPROVAL

1. Clarifications Regarding Treatment of Storage Load in the Rule 21 Tariff

The Parties recommend that the following language be added to the Rule 21 tariff:

> "B.4. Interaction with other Tariffs for Storage Charging Load Treatment For retail Customers interconnecting energy storage devices pursuant to this Rule, the load aspects of the storage devices will be treated pursuant to Electric Rules 2, 3, 15 and 16 just like other load, using the incremental net load for non-residential customers, if any, of the storage devices."

2. Cost Allocation for Upgrades Attributable to Both Load and Generation System Impacts Should Prioritize Load Impacts

If a Utility determines that a given upgrade would be triggered independently by the load or generation (charging or discharging) aspects of an energy storage device, the Utility would first apply the cost allocation principles of Rules 15 and 16 for the upgrades required to serve any permanent, bona fide addition of load with allowances based on the net incremental revenue contributed by added storage charging load; the Utility would then apply the provisions of Rule 21 to anything in addition to what is necessary to serve the load and that was triggered as a result of the generation.

3. Provide Additional Detail on Storage Charging Load Processes via a Public "Guide"

The Utilities will develop an Interconnection Process Guide detailing the processes and implementations by which the load aspects of energy storage are reviewed, including specific size thresholds and cost responsibility of load-related upgrades not already included in Rule 21 or Rules 2, 3, 15 and 16. The guide will contain, at a minimum:

- A description of the review process including specific requirements for cursory load review,
- A description of the kind of information that will be provided by the Utility as a result of the load study, including proposed charging profiles to avoid identified potential system upgrade needs.

- A transparent stakeholder process will be used so that modifications to the Guides may be made quickly and collaboratively.
- The Guide publically available and served on the R.11-09-011 service list or any successor proceeding within 90 Business Days of the date of issuance of a Commission's Final Decision approving this proposal .

4. Modify Interconnection Application and Agreement to Capture Load Related Information

Within 30 business days of the Commission's decision approving this proposal, the Utilities will file and serve a Tier ___ Advice Letter with proposed modifications to their respective Interconnection Application and pro-forma Interconnection Agreement Forms used for facilities that include non-export energy storage. Such proposed modifications shall include:

- ensure storage charging behavior is adequately described in the Rule 21 Interconnection Request.
- memorialize the relevant commitments of an interconnection customer and Utility to respectively operate and serve a generating facility as proposed.
- Clarify the customer's responsibility to notify the Utilities of changes in operations, and to provide data to the Utilities upon request regarding the agreed upon constraints.
- With regard to fees and costs, changes in the load characteristics will be treated in a manner consistent with Rules 2, 3, 15 and 16 using the incremental net load, if any, of the storage device.

II. PROPOSALS FOR ADDITIONAL STEPS FOLLOWING THE COMMISSION ISSUANCE OF THE DECISION ADDRESSING THIS MOTION

In addition to the items discussed in Section I, the Joint Parties propose a process for moving forward on the following additional items that were discussed during the workshops but that require additional review and consideration by the stakeholders to properly balance increased efficiency and flexibility with the need to maintain safety and reliability. For these items, the Joint Parties request Commission approval of the *process* specified to move forward on these items.

1. Expedited Interconnection Process for Certified Standard Storage Applications

The Joint Parties propose that Utility staff and interested industry members collaborate on defining criteria for an expedited interconnection process for non-export energy storage no later than 60 Business Days of issuance of a Final Decision approving this proposal.

Each Utility will file an advice letter the latter of 120 Business Days after filing of the Motion or 30 Business Days after the Commission issues a decision approving the proposal, to create an expedited interconnection process for non-export energy storage that may also be functional for other technologies or configurations in the future.

The expedited process will include:

- For currently known technologies, physical specifications and standard configurations for eligibility, including converter-based storage facilities such as the Bosch DC Microgrid technology;
- For future technologies, process and any related costs to establish new physical specifications and standard configurations for eligibility;
- Information required in an Interconnection Request under this process and any changes needed to filed Application forms;
- Definition of final testing or commissioning activities required prior to interconnection, which may be specific to the configurations or technologies;
- Process flow diagram with mapping to Rule 21 requirements;
- Expected process timelines, as applicable;
- State of automation needed to support the process (if any);
- Date by which the proposed process will be available to customers, allowing time needed to develop process optimizations or automation, as needed;
- Proposed interconnection application fee for projects using the proposed process; and,
- Specification of process documentation that the IOU will make available.

2. Streamlined Rule 21 Review Process for AC/DC Converter

Within 60 Business Days of the delivery to the Utilities of the results of a mutually agreed upon, between the Utilities and Bosch, test of Bosch's AC/DC converter by Underwriters Laboratory, including data on backfeed current and duration that occurs during normal and fault conditions and harmonics contribution of its converter meeting the requirement of IEEE 519 Harmonic Limit, each Utility will file a Tier 2 advice letter(s) requesting Commission approval of amendments to Rule 21 tariff and forms, as applicable, to address the use of AC/DC converters (or other defined term as agreed upon) and specify the certification of and Rule 21 process applicable to such technology that would allow Generating Facilities utilizing such equipment to immediately pass Rule 21 Fast Track Initial Review.

3. Creation of an Option to Utilize Advanced Inverter Functionality for Inadvertent Export

Within 30 Business Days of a Commission Decision approving the Joint Parties' motion, the Joint Parties and interested stakeholders shall provide a status update to the service list for R.11-09-011 on additional progress that has been made toward developing consensus-based requirements to address the inadvertent export issue. This update will include detail on the timeline of further actions, including any expected filings. Within these 30 days, the Joint Parties shall schedule a minimum of three stakeholder calls to engage in continued discussions. If agreement is reached, tariff changes could be proposed to the Commission via advice letter to modify the corresponding tariff sections and filed forms to accommodate the change.

(END OF ATTACHMENT C)

ATTACHMENT D – FILING SCHEDULE

Event	Responsible Party	Due Date
Cost Certainty		
File and serve Tier 1 Advice Letter revising Rule 21 to provide for Unit Cost Guide and Annual Review Process	Each utility	15 Calendar Days after Commission decision approving proposal
File and serve Tier 1 Advice Letter revising Rule 21 to provide for Enhanced Pre-Application Report	Each utility	15 Calendar Days after Commission decision approving proposal
File and serve Tier 2 Advice Letter revising Rule 21 to include a Fixed Price Option	Each utility	30 Calendar Days after Commission decision approving proposal
File and serve Tier 1 Advice Letter publishing first Unit Cost Guide, subsequent versions not to be filed as an Advice Letter	Each utility	90 Calendar Days after Commission decision approving proposal
Behind-the-Meter, Non-Exporting Storage		
File and serve Tier 1 Advice Letter revising Rule 21 to clarify rules applicable to load review	Each utility	15 Calendar Days[11] after Commission decision approving proposal
Serve status report after three stakeholder telephone conferences on advanced inverter inadvertent export option	Each utility	45 Calendar Days after Commission decision approving proposal
Publish modified interconnection application and agreement	Each utility	45 Calendar Days after Commission decision approving proposal
Serve on service list and Energy Division Director list of criteria for expedited interconnection process for non-exporting storage facilities	Each utility	90 Calendar Days after Commission decision approving proposal
If agreement reached on inverter inadvertent export option, File and serve Tier 1 Advice Letter revising Rule 21 to incorporate agreement	Each utility	90 Calendar Days after Commission decision approving proposal
Publish and Serve first Interconnection Guide	Each utility	120 Calendar Days after Commission decision approving proposal

[11] Pursuant to Rule 1.15 of the Commission's Rules of Practice and Procedure, the Commission's normal practice is to count calendar days. The Joint Motion on Behind-the-Meter, Non-Exporting Energy Storage proposes filing deadlines in business days, but here we adopt filing deadlines in comparable calendar days.

File and serve Tier 1 Advice Letter revising Rule 21 to incorporate expedited interconnection process for non-exporting storage	Each utility	120 Calendar Days after Commission decision approving proposal
Serve on service list and Energy Division Director results of agreed-upon UL certification test for AC/DC converter	Each utility	No deadline
File and serve Tier 2 Advice Letter revising Rule 21 review process for AC/DC converters	Each utility	90 Calendar Days after notice of results of agreed-upon Underwriters Laboratory certification test for AD/DC converter

(END OF ATTACHMENT D)